

HESS OIL VIRGIN ISLANDS CORP.

10B2

File #2

BRIAN L. STERLING  
REFINERY MANAGER

REPLY TO:  
KINGSHILL, P. O. BOX 127  
ST. CROIX, U. S. VIRGIN ISLANDS  
00851-0127

May 27, 1994

CERTIFIED MAIL P 636 432 078  
RETURN RECEIPT REQUESTED

Warren Pedersen  
Plant Manager  
Vialco  
P.O. Box 1525  
Kingshill, St. Croix, V.I. 00851

VID 980536080

Re: Assessment of Vialco Property

Dear Mr. Pedersen:

Hess Oil Virgin Islands Corp., (HOVIC) has been directed by the Environmental Protection Agency to submit a plan to determine if offsite migration of dissolved or free phase hydrocarbons has occurred. If the plan is approved, we will need to obtain access to your property to complete this work.

Attached is a copy of this proposed plan and Access Agreement for your review. We would appreciate your signing the Access Agreement and returning one copy to me.

Please contact Dr. Robert Ehrlich at (908)750-7009 or the undersigned, if you have further questions or require additional information.

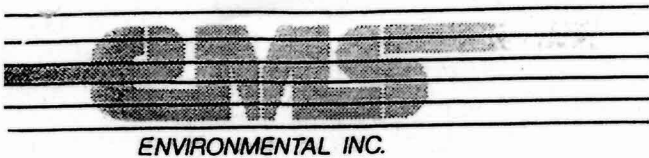
Sincerely,

B.L. Sterling  
Brian L. Sterling  
Refinery Manager

BLS/egt

Enclosure

cc: Mr. R. L. Sagebien  
Mr. J. W. Stephens  
Mr. R. S. Faron  
S-045.013



May 6, 1994

Hess Oil Virgin Islands Corp. (HOVIC)  
St. Croix, U.S. Virgin Islands

OFF-SITE MIGRATION ASSESSMENT  
PLAN

Prepared For: Hess Oil Virgin Islands Corp.  
P. O. Box 127, Kingshill  
St. Croix, U.S.V.I. 00851-0127

Prepared By: EMS Environmental, Inc.  
P. O. Box 21272  
Lehigh Valley, Pennsylvania 18001

Submitted By: Allan M. Blanchard P.G.  
Serial # PG-00025-G  
Principal Hydrogeologist

## **Background**

Soil boring data from the VIALCO (Virgin Islands Alumina Company, formerly Martin Marietta) property, 300 feet west of the HOVIC property line, identified the presence of liquid phase hydrocarbons.

## **Purpose**

This Off-site Migration Assessment Plan was developed in response to an EPA letter request dated 4 March, 1994. The EPA has requested that HOVIC develop a plan for an investigation to determine whether offsite migration of free-phase and/or dissolved hydrocarbons has occurred along the western boundary of the HOVIC facility, and the areal extent of such potential migration.

## **Assessment Approach**

HOVIC proposes to conduct the assessment in the approach outlined below:

- Drilling/Monitoring Well Installation
- Surveying and Monitoring
- Sampling
- Groundwater Flow
- Assessment Report

## **DRILLING/MONITOR WELL INSTALLATION**

### **Drilling**

It is proposed that soil borings/monitor wells be installed at the locations identified on Figure 1. The proposed locations off-set the recovery wells located along the HOVIC western boundary and approximate the location of the previous reported soil boring by VIALCO. Drilling will be performed with equipment and procedures complying with ASTM specifications D 1586 and D 1587. Drilling is planned to be accomplished using hollow-stem augering. If subsurface conditions are such that the planned technique does not produce acceptable results (e.g., unstable borehole walls, slow penetration rate, or poor sample recovery) another technique deemed more appropriate to the type of materials present will be used. The procedure used must be appropriate for the subsurface lithologies present and also must be compatible with the efficient sampling in accordance with ASTM specifications D1586 and D 1587 or alternate soil sampling methods approved by the Field Hydrogeologist. If borehole caving is experienced, bentonitic drilling fluid can be used only with the approval of the Field Hydrogeologist. The use of any other drilling fluid additive also must be approved by the Field Hydrogeologist.

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Samples will be taken at five foot intervals over the full depth of the borings unless an

alternative sampling frequency is requested by the Field Hydrogeologist. Soil borings will be sampled using soil sampling procedures for soil primarily consisting of clays and silty sands. The samples will be screened for volatile organics and visually examined and classified in the field. Sample collection with split-spoons will begin at the soil surface, and will be terminated upon refusal or at a previously-specified total depth. All sampling activities will be overseen by a trained professional soil scientist or hydrogeologist. Where lithologic variations are encountered more frequently than expected, additional samples will be collected to characterize the constituents in these different lithologic units.

Samples will be collected using a drill rig equipped with continuous flight hollow-stem power auger. The auger will be used to drill to the specified depth to be sampled. Split spoon samples will then be collected by driving a 1.4-inch I.D., 2-inch O.D. split-barrel sampler (or equivalent device) into the undisturbed soil by means of a 150-lb weight falling 30 inches. The sampler will be decontaminated or replaced between each interval sampled. The following is an example step-by-step sample collection procedure for the continuous split-spoon soil sampling equipment to be employed:

- Each sampling site will be prepared by scraping away any loose soil clods or rocks to minimize the potential for contamination;

- A previously-cleaned spoon will be driven 24 inches;

- The spoon will be retrieved from the hole and opened;

- The tip of the auger will be located on the soil surface at the exact sampling location;

- The auger shall be advanced into the soil to the depth to be sampled;

- A previously-decontaminated split spoon sampler will be lowered through the stem and a sample collected as described above;

The Field Hydrogeologist will be responsible for maintaining a descriptive log of materials recovered. The descriptive log will contain:

- Sample interval (top and bottom depth);

- Sample recovery;

- Blow count (ASTM D1586);

- Presence or absence of odors, PID value;

- Material description, including: relative density, color, major textural constituents, minor constituents, relative moisture content, plasticity of fines, grain size, structure or

stratification, and any other significant observations, and;

Lithologic contacts: the depth of contacts between differing lithologic units will be measured and recorded to the nearest 0.5 feet.

Soil cuttings will be contained for disposal at the HOVIC facility.

#### Well Installation

Monitoring wells will be 2-inch diameter or schedule 40 PVC casing, equipped with a minimum 10-foot section of slotted schedule 40 PVC screen. Selection of the actual screen length will be determined from observed site conditions. The casing joints will be threaded and no adhesives will be used in the construction of the wells. The annular space of the screened interval of each well will be backfilled with ASTM C-190 sand packing (or equivalent material) to a level 1 foot above the top of the screen.

A bentonite plug, with a minimum 1 foot thickness will be placed above the sand pack. Above the bentonite seal will be a cement/bentonite grout mixture consisting of 3 to 5 pounds of bentonite per 94 pound sack of cement with approximately 6.5 gallons of water. Following a suitable length of time to allow grout settlement, the annular space from three feet below grade to grade level will be sealed with concrete, grading into a cement apron extending three feet from the outer edge of the borehole. A protective casing with a positive locking assembly will be placed around each well in order to provide protection from incidental vehicular contact and to prevent contamination from being introduced into the well. Typical monitoring well construction details are presented in Figure 2.

Following well completion, well development will be instigated to remove any fluids used during drilling and to remove fines from the natural formation to provide a particulate-free discharge. Development will be done by reversing flow direction or surging the well. No fluids other than natural formation water will be added during development, and any collected water remaining from the development process will be collected for discharge into the HOVIC wastewater treatment system. All completion/development procedures will be consistent with guidelines in the "RCRA Ground-Water Monitoring Technical Guidance Document" (1992).

#### SURVEYING AND MONITORING

All wells will be permanently numbered and surveyed by a licensed Surveyor as to location (0.5 ft) and elevation (NGVD) of the top of each well casing (0.01 ft). Well locations will be plotted on the base map.

Fluid level measurements will be collected with a sonic interface probe. The sonic interface will be capable of detecting water and/or light non aqueous phase liquid (LNAPL) fluid levels with a precision of 0.01 feet. All measurements will be collected with reference to the surveyed datum on the top of the well casing. If LNAPL thicknesses are identified by the sonic interface, a transparent bailer will be lowered into the well to provide a visual confirmation of the sonic

interface measurements.

## **SAMPLING**

### **LNAPL Analysis**

If the presence of LNAPL's are measured in the monitoring wells, samples will be collected for identification analyses. The samples will be collected using disposable polyethylene or teflon bailers and poured into one quart amber glass bottles. The sample bottles will be placed into coolers and preserved on ice until delivery to the Hess Corporate Quality Control Laboratory in Port Reading, New Jersey for analyses. The samples will be analyzed for distillation characteristics, specific gravity, lead, sulfur and bromine content, olefins, and percent aromatic constituents (benzene, toluene, xylenes, and aromatics). Analytical methods and required preservatives and containers for the samples are presented in Table 1.

### **Dissolved Hydrocarbon Analysis**

Wells that do not contain a LNAPL layer will be sampled for dissolved hydrocarbons. Prior to sampling, the wells will be purged of three to five well volumes to remove stagnant groundwater from the well casing and annulus. Purge water will be contained and transported to the HOVIC facility for treatment. Groundwater samples will be collected with dedicated or disposable teflon sampling devices and poured into 40 ml glass vials with teflon septa caps. The samples will be placed into a cooler and transported to the HOVIC laboratory for analysis of Benzene, Toluene, Ethylbenzene, Xylenes, and Naphthalene concentrations by EPA method 601.

All sample containers will be labeled and will be accompanied by Chain-of-custody records. The laboratory custodian will verify that the sample labels match the chain-of-custody record. The sample custodian will maintain a sample tracking record that will follow each sample through all stages of laboratory processing.

## **GROUNDWATER FLOW**

Survey and monitoring data will be used to calculate relative water table elevations. This data, along with data from proximal HOVIC monitoring wells, will be used to construct an area wide Water Table Elevation Map. Equivalent water table elevations will be contoured to diagram the groundwater flow direction.

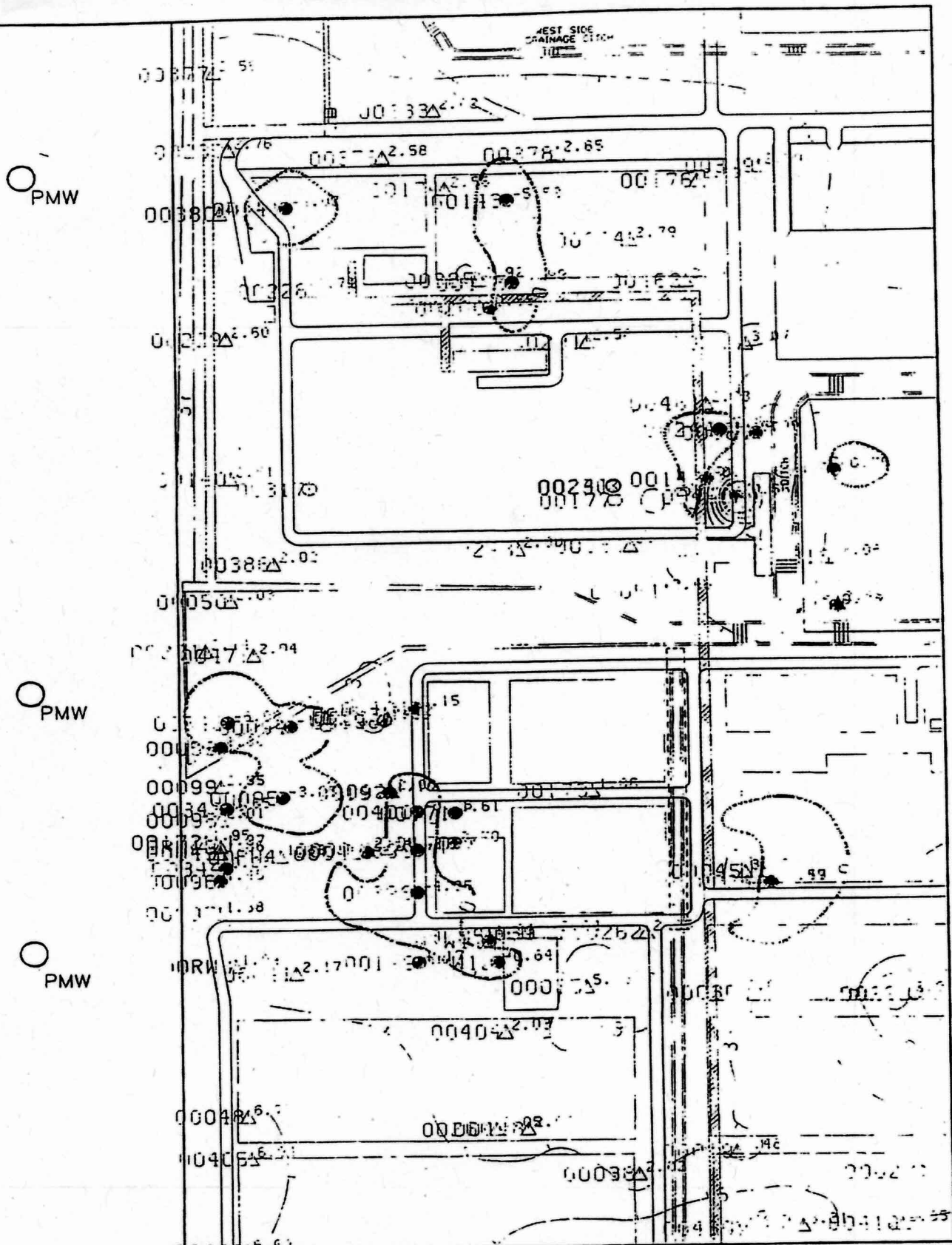
## **ASSESSMENT SUMMARY**

Results of the investigation will be presented in an Off-Site Assessment Report. The report will include boring logs, well completion results, fluid level measurements, analytical results, a Water Table Elevation Contour Map, Hydrocarbon Thickness Map, and a discussion of the possible origin of detected constituents.

Table 1  
LNAPL Sample Parameters, Methods, Preservatives, and Containers

Sample Parameter	Analytical Method	Preservative	Container
Distillation temperature characteristics	ASTM D86	Cool to 4 degrees C	One-quart, amber glass bottle with Teflon-lined lid
Specific gravity	ASTM D1298	Cool to 4 degrees C	One-quart, amber glass bottle with Teflon-lined lid
Lead	ASTM D3237	Cool to 4 degrees C	One-quart, amber glass bottle with Teflon-lined lid
Sulfur	ASTM D4045	Cool to 4 degrees C	One-quart, amber glass bottle with Teflon-lined lid
Bromine	ASTM D1159	Cool to 4 degrees C	One-quart, amber glass bottle with Teflon-lined lid
Olefins	ASTM D1159	Cool to 4 degrees C	One-quart, amber glass bottle with Teflon-lined lid
Aromatics	Gas Chromatography	Cool to 4 degrees C	One-quart, amber glass bottle with Teflon-lined lid

FIGURE 1



**DRAWN BY:**

CK

DATE \_\_\_\_\_

5/5/94

**SCALE**

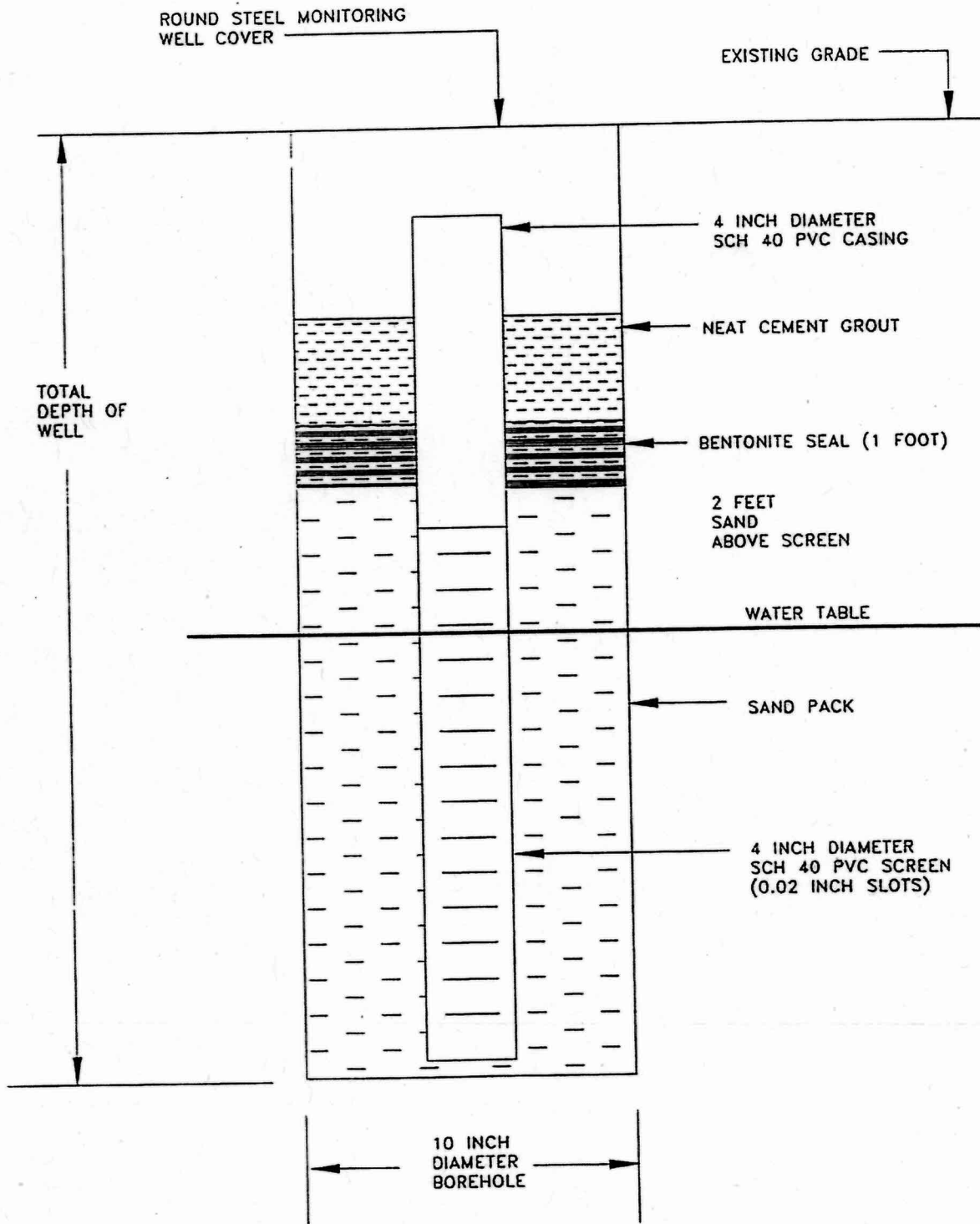
$$1'' = 300'$$

TITLE

PROPOSED OFFSITE  
MONITORING WELL  
LOCATIONS (PMW)  
HOVIC



# FIGURE 2



## MONITOR WELL CONSTRUCTION DETAILS

Drawn By:

CK

Date:

5/1994

Scale:

NONE

Amerada Hess Corporation

FILE NAME: WELL

## ACCESS AGREEMENT

1. Virgin Islands Alumina Corporation (VIALCO) as the owner of the real property located in St. Croix, Virgin Islands, known as the VIALCO Alumina Plant, hereby grants to Hess Oil Virgin Islands Corp. (HOVIC) and its employees, agents and contractors, the right to, at HOVIC's sole cost and expense, enter upon the real property described above for the sole purpose of carrying out the requirements of the work plan appended hereto as Attachment A, and all other activities incident thereto. This work plan, proposed by HOVIC and accepted by VIALCO, will set forth the basis for a focused environmental assessment of VIALCO's Area C, as further specified by the Plan, and as may be amended from time to time by HOVIC, as its assessment may necessitate.

2. It is expressly agreed and understood that this agreement shall not operate or be construed to create the relationship of landlord and tenant between the parties hereto under any circumstances whatsoever, and that VIALCO has absolute, complete and unimpeded right to deal with the real property in question as any other party with fee simple title except that VIALCO, and its successors and assigns shall, during the term of this Access Agreement, in no way interfere with the integrity of the site assessment, (soil and sediment analysis and ground water analysis) and any wells constructed on the property of VIALCO, or to interfere with HOVIC, its employees, agents or contractors, or the right of ingress and egress by HOVIC and its employees, agents or contractors, to monitor said site assessment or wells, and to conduct all necessary sampling and maintenance for as long as may be necessary to complete the work plan.

3. HOVIC agrees to defend, indemnify and save harmless VIALCO from all losses, claims, liabilities, expenses and costs of any kind (including death) caused in connection with HOVIC's exercise of the rights herein granted by any wrongful or negligent act or omission of HOVIC, its employees, agents or contractors.

4. VIALCO agrees to defend, indemnify and save harmless HOVIC from all losses, claims, liabilities, expenses and costs of any kind (including death) caused in connection with HOVIC's exercise of the rights herein granted by any wrongful or negligent act or omission of VIALCO, its employees, agents or contractors.

IN WITNESS WHEREOF and intending to be legally bound, the parties hereto have caused this instrument to be duly signed this \_\_\_\_ day of \_\_\_\_\_, 1994.

WITNESS:

\_\_\_\_\_  
Hess Oil Virgin Islands Corp.

\_\_\_\_\_

WITNESS:

\_\_\_\_\_  
Virgin Islands Alumina Corporation

\_\_\_\_\_

\_\_\_\_\_

P 636 432 078



# Certified Mail Receipt

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BLS (DEPT. 01) 6/6/94

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P 636 432 078

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